Modifications to DSpace 1.5: A Technical Overview
Open Repositories 2009 DSpace User Group Proposal
Elliot Metsger, Programmer, Library Digital Programs, Johns Hopkins University

Introduction

In the fall of 2008, the Library Digital Programs of the Johns Hopkins University's Sheridan Libraries launched a new version of JScholarship, the Johns Hopkins institutional repository, based on the DSpace 1.5 platform. Requirements gathering identified missing features of the software platform. Embargos, bitstream suppression, unit testing, and other modifications were implemented prior to launch.

Embargoes

The first feature built was an embargo module for DSpace. This function enables a submitter to prevent public access to his or her item for a set period of time. When an item is embargoed, its bitstreams cannot be retrieved, and no new bitstreams can be added. Authorized users may bypass (or update) an embargo for curation purposes, but anonymous users will never be able to retrieve an embargoed item's bitstreams. Embargoes are enabled and configured on a per-collection basis. The DSpace administrator specifies the different embargo periods (e.g. 1 month, 3 months, etc.) and whether or not embargoed items are discoverable by users.

Bitstream Suppression and Masking

Other JScholarship communities have demonstrated the need for other types of content restriction. Unlike some institutional repositories, JScholarship is the home to some library digital collections in addition to faculty research. Both master files and service copies are preserved in the IR, but some collection administrators prefer to restrict access to the master files. The motivations for these restrictions range from the desire to sell high-resolution images to simplifying the user experience. The library has developed DSpace functionality that will enable the suppression or masking of particular bitstreams in a DSpace item. Suppressed bitstreams will not show up in the list of bitstreams attached to an item, and they cannot be downloaded. Authorized users may bypass the suppression flag to view or download a bitstream. Bitstream suppression is different from embargoes; suppression operates at the bitstream level, and there is no "expiration period" associated with the suppression flag.

Users may request that a bitstream be suppressed when attaching files to their submission, and administrators are able to edit the item and suppress individual bitstreams after the item has been accepted into the archive. Masking is a much coarser (and clumsier) way of hiding communities, collections, or items from discovery and indexing/harvesting. An administrator specifies the handle(s) of the DSpace object to mask, and the masked objects are not returned in browse or search

results. Even DSpace administrators cannot view masked objects. They can, however, be manipulated by the item editor providing the administrator knows the handle of the masked item.

Other modifications

A number of other modifications and enhancements have been added to JScholarship, which we could discuss at appropriate levels of detail depending on the time constraints or recommendations from the program committee. They include Partial Get support for the XMLUI BitstreamReader, Item Import modifications, and a small number of utilities that aid in administration of our DSpace instance.

Supporting Work

Two bodies of work support our DSpace modifications. The first, and most crucial, is the addition of a test harness that allows us to rapidly test our changes to the DSpace code base. Unit testing is pervasive in the new DSpace 2 code base but is something that is missing from the DSpace 1.x code base.

The second body of work is a library that provides a more flexible means for authorizing a user's actions in DSpace.